

REMARKS

Reconsideration of this application is respectfully requested in view of the amendments and arguments presented herein. Claims 1-61 remain pending in the present application. Claims 1, 21, and 38 have been amended. No new matter has been added.

35 U.S.C. Section 101 Rejections

The present Office Action rejects Claims 1-20 as directed to non-statutory subject matter. Applicant respectfully traverses. The present Office Action alleges that Claim 1 recites "a resource management and task allocation controller" wherein the controller is software parse as recited in the claim language lines 3-6 "the controller being in communication with each of the processor elements but separate from the master processing unit, and comprising control logic to allocate executable transactions within the mulitcore processor to a one of the processor" as the control logic is being used to allocate transactions to the processors without being stored on a storage device or including any hardware within the controller. Applicant does not understand how the Examiner is interpreting Claim 1 to include a "software parse." It appears to Applicant that the Examiner is rejecting Claim 1 as not satisfying the tied to a particular machine or apparatus criteria of In re Bilski.

Under *In re Bilski*, F.3d 943 (Fed Cir. 2008), a method claim is patentable subject matter if (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing (emphasis in original). With regard to the tied to a particular machine or apparatus criteria, Applicant points out that Claim 1 recites a resource management and task allocation controller for a multicore processor and the control logic being in communication with each of the processor elements, as claimed (emphasis added). Applicant respectfully asserts that being a controller for a multicore processor and control logic being in communication with each the processor elements of a multicore processor, as claimed, directly ties the resource management and task allocation controller to a machine or apparatus (e.g., processor elements of a multicore processor). Therefore, Applicant respectfully asserts that the tied to a particular machine or apparatus criteria has been satisfied.

Further, with regard to the transforms a particular article into a different state or thing criteria, Applicant points out that the *In re Bilski* court stated that a process transforming data is patentable where such data represents physical and tangible objects. Applicant respectfully points out that Claim 1 recites control logic to allocate executable transactions within the multicore processor, as claimed. Applicant points out that instructions or transactions being allocated can represent physical and tangible objects. For

example, instructions or transactions can represent the physical configuration or state of transistors (e.g., on or off) of a multicore processor and the act of allocating them changes their state. Therefore, Applicant respectfully asserts that the transforming a particular article into a different state or thing criteria is satisfied and thus Claim 1 is directed to statutory subject matter. Dependent Claims are allowable by virtue of their dependency. Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. Section 101 has been overcome.

35 U.S.C. Section 112, second paragraph Rejections

The present Office Action rejects Claim 1 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully disagrees. Applicant has amended Claim 1 to more particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant further respectfully asserts that a resource management and task allocation controller is an apparatus. Therefore, Applicant respectfully asserts that the rejection under 35 U.S.C. 112, second paragraph has been overcome.

35 U.S.C. Section 103(a) Rejections

The present Office Action rejects Claims 1-5, 7-14, 18-19, 21-32, 38-41, 47-48, 50, 51, 53 and 56-59 as being unpatentable over US Patent No. 5,202,987 (hereinafter Bayer) in view of US Patent No. 5,504,670 (hereinafter Barth). Applicant respectfully traverses.

Applicant directs the Examiner to Claim 1 which recites (emphasis added):

A resource management and task allocation controller for a multicore processor, the multicore processor comprising a plurality of interconnected processor elements, at least one of which is a master processing unit, each interconnected processor element providing resources for processing executable transactions and said controller comprising:

comprising control logic to allocate executable transactions within the multicore processor to one of the processor elements in accordance with one of a range of pre-defined allocation parameters, wherein the control logic is in communication with each of the plurality of interconnected processor elements but separate from the master processing unit and wherein said plurality of interconnected processor elements are integrated into a single integrated circuit die.

Claims 21 and 38 recite distinguishing limitations similar to those of Claim 1.

The response to arguments section alleges that "the claimed language does not disclose any of the limitations that show the difference between the multi-core processor and a multiprocessor system as the claimed functionality does not make the difference between them." Applicant respectfully disagrees. Applicant has herein amended Claim 1 to specifically

recite that the plurality of interconnector processor elements of the multicore processor are integrated into a single integrated die. Applicant respectfully asserts that the mere mention of multiprocessor system by Bayer does not teach or suggest a multicore processor, as claimed. Barth does not remedy the shortcomings of Bayer. Applicant can find no mention of a multicore processor in either of Bayer or Barth. Thus, Applicant respectfully asserts that Bayer and Barth, alone and in combination do not teach or suggest a multicore processor nor a controller of a multicore processor, as claimed.

The Response to Arguments section states that "Bayer teaches a multicore processor system with a controller that controls task scheduling and assignment for all the processors but does not teach one of the processors being a master processor wherein Batch teaches a multicore processor system wherein one of the processing unit is a master processing unit." Applicant respectfully disagrees. For the reasons above, Applicant respectfully asserts that Bayer and Barth do not teach or suggest a multicore system, as claimed. In addition, Applicant points out that Claim 1 recites control logic being in communication with each of the plurality of interconnected processor elements but separate from the master processing unit, as claimed (emphasis added). The rejection admits that Bayer does not specifically disclose at least one of which is a master processing unit. The rejection relies on Bather teaching at least one of which is a master processing unit. Applicant points

out that because Bayer does not disclose a master processor, Bayer cannot teach or suggest control logic being in communication with each of the plurality of interconnected processor elements where one of the processing elements is a master processing unit. Similarly, to the extent that Barth may mention in a multi-site tester, one processor controls the testing operation for all the sites and acts as a master (Col. 2, lines 24-26), Applicant respectfully asserts that Barth cannot teach or suggest control logic being in communication with each of plurality of interconnected processor elements but separate from the master processing unit, as claimed. That is, Applicant understands that the master processor of Barth to act as a controller and therefore Barth cannot teach or suggest a resource management and task allocation control logic being in communication with each of plurality of interconnected processor elements but separate from the master processing unit, as claimed (emphasis added). Therefore, Applicant respectfully asserts that the combination of Barth and Bayer does not teach or suggest control logic being in communication with each of the plurality of interconnected processor elements including a master processing unit but separate from the master processing unit, as claimed (emphasis added). Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claim 1 are not rendered obvious by the combination of Bayer and Barth within the meaning of 35 U.S.C. 103(a).

Independent Claims 21 and 38 are patentable for similar reasons as recited above. Accordingly, Applicant respectfully asserts that dependent Claims 2-5, 7-14, 18-19, 22-32, 39-41, 47-48, 50, 51, 53, and 56-59 are patentable by virtue of their dependency.

As per Claim 3, the rejection alleges Bayer teaches that the range of predefined allocation parameters included within the control logic of the controller contains a plurality of system management rules, for controlling the manner in which the executable transactions are executed by the processor elements. Applicant respectfully disagrees. Applicant again points out that the synchronizer/scheduler of Bayer performs scheduling of tasks (Col 5, lines 29-31). Applicant again respectfully asserts that a teaching of task scheduling is substantially different from controlling the manner in which executable transactions are executed by processor elements as claimed (emphasis added). Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claim 3 are not rendered obvious within the meaning of the 35 U.S.C. 103(a).

As per Claim 7, the rejection alleges that Bayer teaches a dedicated memory manager which controls access by an executable transaction manager to the dedicated memory. Applicant respectfully disagrees. To the extent that Bayer may mention that the code of tasks is loaded in memory

and that the topology of the task map is held by the synchronizer/scheduler (Col 7, lines 16-17), Applicant respectfully asserts that Bayer does not teach or suggest a dedicated memory manager controlling access by an executable transaction manager to the dedicated memory, as claimed (emphasis added). Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claim 7 are not rendered obvious within the meaning of the 35 U.S.C. 103(a).

As per Claims 8-10, the rejection alleges Bayer teaches a dedicated memory. Applicant respectfully disagrees. To the extent that Bayer may mention that the code of tasks is loaded in memory and that the topology of the task map is held by the synchronizer/scheduler (Col 7, lines 16-17), Applicant respectfully asserts that Bayer does not teach or suggest a dedicated memory for access by a resource management and task allocation controller, as claimed. More specifically, Applicant points out that that Bayer mentions that the internal register within the synchronizer/scheduler dedicated to <task.sub. -- id> is subject to external access (write only), as if it were a global memory cell (Col. 10, lines 44-49). Applicant further understands the synchronizer/scheduling subsystem to utilize shared memory (Fig. 1 and Col. 7, lines 15-17). Therefore, Applicant respectfully asserts that Bayer does not teach or suggest dedicated memory, as claimed. Accordingly, Applicant respectfully asserts that Bayer does not teach an

executable transaction input manager configured to maintain an indication of available memory within dedicated memory, an executable transaction manager input configured to maintain a list of available memory locations with the dedicated memory, or an executable transaction input manager maintaining the indication of available memory as a result of updated instructions from a dedicated memory manager, as claimed. Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claims 8-10 are not rendered obvious within the meaning of the 35 U.S.C. 103(a).

As per Claim 12, the rejection relies on Bayer teaching control logic comprising a time manager configured to provide timer function to an executable transaction manager. Applicant respectfully disagrees. Applicant can find no mention in Bayer of a time manager configured to provide timer functions as claimed. Applicant respectfully asserts that the mere mention of minimal time needed for allocation tasks (Col. 9, lines 1-3) does not teach or suggest a time manager configured to provide timer function to an executable transaction manager, as claimed. Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claim 12 are not rendered obvious within the meaning of the 35 U.S.C. 103(a).

As per Claim 25, the rejection alleges Bayer teaches a dedicated memory being exclusively accessible by the controller. Applicant respectfully disagrees. To the extent that Bayer may mention that the synchronization/scheduling subsystem comprises a task map which contains dependencies between tasks to be performed by the processors (Col 4, lines 58-60), Applicant respectfully asserts that Bayer does not teach or suggest a dedicated memory exclusively accessible by the controller, as claimed (emphasis added). Applicant points out that that Bayer mentions that the internal register within the synchronizer/scheduler dedicated to <task.sub. -- id> is subject to external access (write only), as if it were a global memory cell (Col. 10, lines 44-49). Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claim 25 are not rendered obvious within the meaning of the 35 U.S.C. 103(a).

As per Claim 47, the rejection alleges Barth teaches creating, executing or deleting an executable transaction for a first management client, with a second transaction management client. Applicant respectfully disagrees. To the extent that Barth may mention that each sub-controller can control the resources on the lower level (Col 4, line 21), Applicant respectfully asserts that Barth does not teach or suggest creating, executing or deleting an executable transaction for a first transaction management client, with a second transaction management client, as claimed (emphasis

added). Therefore, Applicant respectfully asserts that embodiments of the present invention as recited in Claim 47 are not rendered obvious within the meaning of the 35 U.S.C. 103(a).

The present Office Action rejects Claims 6, 20, 33-37, 45, and 46 as being unpatentable over Bayer in view of Barth and further in view of US Patent No. 6,314,501 (hereinafter Gulick). Applicant respectfully traverses.

For the reasons stated above, Applicant respectfully submits that independent Claim 1, from which Claims 6 and 20 depend and independent Claim 21, from which Claims 33-37 depend, and independent Claim 38, from which Claims 45 and 46 depend are allowable over Bayer in view of Barth. In addition, Applicant respectfully submits that Gulick does not remedy the shortcomings of Bayer in view of Barth. Therefore, Applicant respectfully submits that Claims 6, 20, 33-37, 45, and 46 are also allowable over the combination of Bayer, Barth, and Gulick as being dependent on allowable base claims.

The present Office Action rejects Claims 15-17, 42, 52, 55, and 60 as being unpatentable over Bayer in view of Barth and further in view of US Patent 5,592,671 (hereinafter Hirayama). Applicant respectfully traverses.

For the reasons stated above, Applicant respectfully submits that independent Claim 1, from which Claims 15-17 depend, independent Claim 38 from which Claims 42, 52, 55 ,and 60 depend are allowable over Bayer in view of Barth. In addition, Applicant respectfully submits that Hirayama does not remedy the shortcomings of Bayer in view of Barth. Therefore, Applicant respectfully submits that Claims 15-17, 42, 52, 55, and 60 are also allowable over the combination of Bayer, Barth, and Hirayama as being dependent on allowable base claims.

The present Office Action rejects Claims 43 and 44 as being unpatentable over Bayer in view of Barth in view of Hirayama and further in view of Gulick. Applicant respectfully traverses.

For the reasons stated above, Applicant respectfully submits that independent Claim 38, from which Claims 43 and 44 depend are allowable over Bayer in view of Barth in further in view of Gulick. In addition, Applicant respectfully submits that Hirayama does not remedy the shortcomings of Bayer in view of Barth in further view of Gulick. Therefore, Applicant respectfully submits that Claims 43 and 44 are also allowable over the combination of Bayer, Barth, Hirayama, and Gulick as being dependent on allowable base claims.

The present Office Action rejects Claim 49 as being unpatentable over Bayer in view of Barth and further in view of US Patent No. 4,414,624 (hereinafter Summer). Applicant respectfully traverses.

For the reasons stated above, Applicant respectfully submits that independent Claim 38, from which Claim 49 depends are allowable over Bayer in view of Barth. In addition, Applicant respectfully submits that Summer does not remedy the shortcomings of Bayer in view of Barth. Therefore, Applicant respectfully submits that Claim 49 is also allowable over the combination of Bayer, Barth, and Summer as being dependent on allowable base claims.

The present Office Action rejects Claim 61 as being unpatentable over Bayer in view of Barth and further in view of US Patent No. 4,001,783 (hereinafter Monahan). Applicant respectfully traverses.

For the reasons stated above, Applicant respectfully submits that independent Claim 21, from which Claim 61 depends is allowable over Bayer in view of Barth. In addition, Applicant respectfully submits that Monahan does not remedy the shortcomings of Bayer in view of Barth. Therefore, Applicant respectfully submits that Claim 61 is also allowable over the

combination of Bayer, Barth, and Monahan as being dependent on allowable base claims.

CONCLUSION

Applicant respectfully asserts that all claims (Claims 1-61) are in condition for allowance and Applicant earnestly solicits such action from the Examiner. The Examiner is urged to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

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Respectfully submitted,
MURABITO, HAO & BARNES

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